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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/786,864	02/24/2004	Hiroshi Miyanari	1232-5309	3636

27123 7590 01/07/2009

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EXAMINER	
KHAN, USMAN A	

ART UNIT	PAPER NUMBER
2622	

NOTIFICATION DATE	DELIVERY MODE
01/07/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/786,864	MIYANARI ET AL.	
	Examiner	Art Unit	
	USMAN KHAN	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 November 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,4,6,8,9 and 11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,4,6,8,9 and 11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/10/2008 has been entered.

Applicant's arguments filed on 11/10/2008 with respect to claims 1, 2, and 8 have been considered but are not persuasive.

Please refer to the following office action, which clearly sets forth the reasons for non-persuasiveness.

Regarding **claims 1, 2, and 8**, Applicant argues Claims 1, 6, and 8, as amended, are directed to arrangements in which one-dimensional correction data is generated by using signals (which are acquired by image sensing in an unexposed state and smaller in number than said plurality of pixels) **when an image sensing apparatus is powered on**. By way of example, because the signals are obtained when an image sensing apparatus is powered on, the one-dimensional correction data generated by using the signals corresponds to environmental conditions such as ambient temperature. Further, the processing time for generating the one-dimensional correction data is for example

shortened because the one-dimensional correction data is generated by using the signals obtained only from some of the pixels instead of all pixels.

However, the examiner notes that the applicant does not claim (if supported in the original specification as filed) that e.g. "first calculation portion generates the correction data **automatically without user intervention only** at the time image sensing apparatus is **first** powered on", hence the examiner can broadly read the claimed "when said image sensing apparatus is powered on as meaning "at any time when the said image sensing apparatus is powered on and not off" hence the amended claims are still rejected under Kohashi et al. (US patent No 6,642,960) in further view of SHIOMI (JP2001016509A) as discussed below.

Hence a majority of the previous rejection as set forth in the previous office action is repeated.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 1, 3, 6, 9, and 11 rejected under 35 U.S.C. 103(a) as being unpatentable over Kohashi et al. (US patent No 6,642,960) in further view of SHIOMI (JP2001016509A).

Regarding **claim 1**, Kohashi et al. teaches an image sensing apparatus (abstract and column 2 lines 5 *et seq.*) comprising: a plurality of pixels arrayed in a horizontal and a vertical direction (column 2 lines 14 – 34, image pickup device composed of two-dimensionally arrayed pixels); a first calculating portion which creates correction data by performing computation using signals which are acquired by image sensing in an unexposed state (figure 4A item 21-1 and column 13 lines 4 *et seq.*) and smaller in number than said plurality of pixels (column 12 lines 13 *et seq.* and column 13 lines 51 *et seq.*, region surrounding a fault pixel); and changes the number of signals used to create the correction data in accordance with a sensitivity condition set at the time of image sensing (figure 9A – 9K; also column 14 lines 59 et seq. the pattern changes on an edge condition resulting in a varying signal used for correction), wherein said first calculation portion generates the correction data when said image sensing apparatus is powered on (figures 4A, 4B, 5, 6 – 13; 15 - 17, and 23 and column 2 lines 52 *et seq.*; Note: the applicant does not claim (if supported in the original specification as filed) that e.g. "first calculation portion generates the correction data **automatically without user intervention only** at the time image sensing apparatus is **first** powered on", hence the examiner can broadly read the claimed "when said image sensing apparatus is powered on as meaning "at any time when the said image sensing apparatus is powered on and not off"); and

a second calculating portion which corrects image data of said plurality of pixels, acquired by image sensing in an exposed state, by using the correction data (figure 5 items 31-1 *et seq.* and column 13 lines 62 *et seq.*; and correcting each pixel is taught in column 2 lines 52 – 62, column 6 lines 50 – 62 column 13 lines 4 – 40; also figures 24 – 27 and column 21 lines 38 *et seq.* Kohashi et al. teaches that the faulty pixel group can be composed of more then one pixel for correcting i.e. plurality of pixels).

However, Kohashi et al. fails to teach that the correction data is one-dimensional data in the horizontal direction and the second correcting portion is that of said plurality of pixels for image data of each of pixels arrayed in the horizontal direction. SHIOMI, on the other hand teaches that the correction data is one-dimensional data in the horizontal direction and the second correcting portion is that of said plurality of pixels for image data of each of pixels arrayed in the horizontal direction.

More specifically, SHIOMI teaches that the correction data is one-dimensional data in the horizontal direction and the second correcting portion is that of said plurality of pixels for image data of each of pixels arrayed in the horizontal direction (paragraphs 0029 - 0040).

Therefore, one of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of SHIOMI with the teachings of Kohashi et al. because in paragraph 0043 SHIOMI teaches that the use of the invention reduces noise.

Regarding **claim 3**, as mentioned above in the discussion of claim 1, Kohashi et al. in further view of SHIOMI teaches all of the limitations of the parent claim.

Additionally, Kohashi et al. teaches that the said plurality of pixels are arrayed in the horizontal direction and the vertical direction (column 2 lines 14 – 34, image pickup device composed of two-dimensionally arrayed pixels; also figures 1, 2, 7, 9, 10, 12, 16, 18-22, and 24-47), and said first calculating portion creates the correction data by vertically mixing signals (column 13 line 62 – column 14 line 12; vertical direction pixel interpolating) from pixels which are smaller in number than said plurality of pixels and arrayed in the horizontal direction and the vertical direction (column 13 line 62 – column 14 line 12 region surrounding a fault pixel; and column 12 lines 13 *et seq.* and column 13 lines 51 *et seq.*, region surrounding a fault pixel).

However, Kohashi et al. fails to teach that the correction data is one-dimensional data in the horizontal direction. SHIOMI, on the other hand teaches that the correction data is one-dimensional data in the horizontal direction.

More specifically, SHIOMI teaches that the correction data is one-dimensional data in the horizontal direction (paragraphs 0029 - 0040).

Therefore, one of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of SHIOMI with the teachings of Kohashi et al. because in paragraph 0043 SHIOMI teaches that the use of the invention reduces noise.

Regarding **claim 6**, Kohashi et al. teaches a control method for an image sensing apparatus (abstract and column 2 lines 5 *et seq.*) having a plurality of pixels arrayed in a horizontal and vertical direction (column 2 lines 14 – 34, image pickup device composed of two-dimensionally arrayed pixels); comprising: a first calculating step which creates correction data by performing computation using signals which are acquired by image sensing in an unexposed state (figure 4A item 21-1 and column 13 lines 4 *et seq.*) and smaller in number than said plurality of pixels (column 12 lines 13 *et seq.* and column 13 lines 51 *et seq.*, region surrounding a fault pixel); and changes the number of signals used to create the correction data in accordance with a sensitivity condition set at the time of image sensing (figure 9A – 9K; also column 14 lines 59 et seq. the pattern changes on an edge condition resulting in a varying signal used for correction), wherein said first calculation portion generates the correction data when said image sensing apparatus is powered on (figures 4A, 4B, 5, 6 – 13; 15 - 17, and 23 and column 2 lines 52 *et seq.*; Note: the applicant does not claim (if supported in the original specification as filed) that e.g. "first calculation portion generates the correction data **automatically without user intervention only** at the time image sensing apparatus is **first** powered on", hence the examiner can broadly read the claimed "when said image sensing apparatus is powered on as meaning "at any time when the said image sensing apparatus is powered on and not off"); and

a second calculating step which corrects image data of said plurality of pixels, acquired by image sensing in an exposed state, by using the correction data (figure 5 items 31-1 *et seq.* and column 13 lines 62 *et seq.*).

However, Kohashi et al. fails to teach that the correction data is one-dimensional data in the horizontal direction and the second correcting portion is that of said plurality of pixels for image data of each of pixels arrayed in the horizontal direction. SHIOMI, on the other hand teaches that the correction data is one-dimensional data in the horizontal direction and the second correcting portion is that of said plurality of pixels for image data of each of pixels arrayed in the horizontal direction.

More specifically, SHIOMI teaches that the correction data is one-dimensional data in the horizontal direction and the second correcting portion is that of said plurality of pixels for image data of each of pixels arrayed in the horizontal direction (paragraphs 0029 - 0040).

Therefore, one of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of SHIOMI with the teachings of Kohashi et al. because in paragraph 0043 SHIOMI teaches that the use of the invention reduces noise.

Regarding **claim 9**, as mentioned above in the discussion of claim 1, Kohashi et al. in further view of SHIOMI teaches all of the limitations of the parent claim.

Additionally, Kohashi et al. teaches that only signals of a smaller number than said plurality of pixels to be corrected are acquired by image sensing in an unexposed state to create the correction data (column 13 line 62 – column 14 line 12 region surrounding a fault pixel; and column 12 lines 13 *et seq.* and column 13 lines 51 *et seq.*, region surrounding a fault pixel).

However, Kohashi et al. fails to teach that the correction data is one-dimensional data in the horizontal direction. SHIOMI, on the other hand teaches that the correction data is one-dimensional data in the horizontal direction.

More specifically, SHIOMI teaches that the correction data is one-dimensional data in the horizontal direction (paragraphs 0029 - 0040).

Therefore, one of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of SHIOMI with the teachings of Kohashi et al. because in paragraph 0043 SHIOMI teaches that the use of the invention reduces noise.

Regarding **claim 11**, as mentioned above in the discussion of claim 1, Kohashi et al. teaches all of the limitations of the parent claim.

Additionally, Kohashi et al. teaches that the second calculating portion uses the correction data to correct for noise in the image data (column 11 line 66 – column 12 line 12, noise canceling).

However, Kohashi et al. fails to teach that the correction data is one-dimensional data in the horizontal direction. SHIOMI, on the other hand teaches that the correction data is one-dimensional data in the horizontal direction.

More specifically, SHIOMI teaches that the correction data is one-dimensional data in the horizontal direction (paragraphs 0029 - 0040).

Therefore, one of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of SHIOMI with the teachings

of Kohashi et al. because in paragraph 0043 SHIOMI teaches that the use of the invention reduces noise.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kohashi et al. (US patent No 6,642,960) in further view of Hamasaki (US patent No 5,335,008) in further view of SHIOMI (JP2001016509A).

Regarding **claim 4**, as mentioned above in the discussion of claim 3, Kohashi et al. teaches all of the limitations of the parent claim. Additionally, Kohashi et al. teaches that said first calculating portion creates the correction data by vertically mixing signals from pixels (column 13 line 62 – column 14 line 12; vertical direction pixel interpolating), which are smaller in number than said plurality of pixels and arrayed in the horizontal direction and the vertical direction, through the corresponding amplifiers (column 13 line 62 – column 14 line 12 region surrounding a fault pixel; and column 12 lines 13 *et seq.* and column 13 lines 51 *et seq.*, region surrounding a fault pixel).

However, Kohashi et al. fails to disclose an amplifier for each array of pixels arrayed and plurality of pixels and arrayed in the horizontal direction and the vertical direction, through the corresponding amplifiers. Hamasaki, on the other hand discloses an amplifier for each array of pixels arrayed and plurality of pixels and arrayed in the horizontal direction and the vertical direction, through the corresponding amplifiers.

More specifically, Hamasaki discloses an amplifier for each array of pixels arrayed and plurality of pixels and arrayed in the horizontal direction and the vertical direction, through the corresponding amplifiers (column 2 lines 30 – 41).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Hamasaki with the teachings of Kohashi et al. so that the fluctuation of a threshold voltage of a load MOS transistor connected to the vertical signal line can be reduced so that an aperture ratio can be increased as the vertical signal line is reduced in thickness as taught in column 2 lines 24 – 29 of Hamasaki.

However, Kohashi et al. in further view of Hamasaki fails to teach that the correction data is one-dimensional data in the horizontal direction. SHIOMI, on the other hand teaches that the correction data is one-dimensional data in the horizontal direction.

More specifically, SHIOMI teaches that the correction data is one-dimensional data in the horizontal direction (paragraphs 0029 - 0040).

Therefore, one of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of SHIOMI with the teachings of Kohashi et al. in further view of Hamasaki because in paragraph 0043 SHIOMI teaches that the use of the invention reduces noise.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kohashi et al. (US patent No 6,642,960) in further view of Examiners Official Notice in further view of SHIOMI (JP2001016509A).

Regarding **8**, Kohashi et al. teaches a computer implements a control method for an image sensing apparatus (abstract and column 2 lines 5 *et seq.*) having a plurality of

pixels arranged in a horizontal and a vertical direction (column 2 lines 14 – 34, image pickup device composed of two-dimensionally arrayed pixels), the method comprising:

a first calculating step which creates correction data by performing computation using signals which are acquired by image sensing in an unexposed state (figure 4A item 21-1 and column 13 lines 4 *et seq.*) and smaller in number than said plurality of pixels (column 12 lines 13 *et seq.* and column 13 lines 51 *et seq.*, region surrounding a fault pixel); and changes the number of signals used to create the correction data in accordance with a sensitivity condition set at the time of image sensing (figure 9A – 9K; also column 14 lines 59 et seq. the pattern changes on an edge condition resulting in a varying signal used for correction), wherein said first calculation portion generates the correction data when said image sensing apparatus is powered on (figures 4A, 4B, 5, 6 – 13; 15 - 17, and 23 and column 2 lines 52 *et seq.*; Note: the applicant does not claim (if supported in the original specification as filed) that e.g. "first calculation portion generates the correction data **automatically without user intervention only** at the time image sensing apparatus is **first** powered on", hence the examiner can broadly read the claimed "when said image sensing apparatus is powered on as meaning "at any time when the said image sensing apparatus is powered on and not off"); and

a second calculating step which corrects image data of each of said plurality of pixels, acquired by image sensing in an exposed state, by using the correction data (figure 5 items 31-1 *et seq.* and column 13 lines 62 *et seq.*; and correcting each pixel is taught in column 2 lines 52 – 62, column 6 lines 50 – 62 column 13 lines 4 – 40; also figures 24 – 27 and column 21 lines 38 *et seq.* Kohashi et al. teaches that the faulty

pixel group can be composed of more then one pixel for correcting i.e. plurality of pixels).

However, Kohashi et al. fails to teach a computer readable medium storing program code that is executed by the computer.

The examiner takes Official Notice that it is old and well known in the art to have a computer readable medium storing program code that is executed by a computer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a computer readable medium storing program code that is executed by a computer since the computer readable medium is easily upgradeable.

However, Kohashi et al. in further view of Examiners Official Notice fails to teach that the correction data is one-dimensional data in the horizontal direction and the second correcting portion is that of said plurality of pixels for image data of each of pixels arrayed in the horizontal direction. SHIOMI, on the other hand teaches that the correction data is one-dimensional data in the horizontal direction and the second correcting portion is that of said plurality of pixels for image data of each of pixels arrayed in the horizontal direction.

More specifically, SHIOMI teaches that the correction data is one-dimensional data in the horizontal direction and the second correcting portion is that of said plurality of pixels for image data of each of pixels arrayed in the horizontal direction (paragraphs 0029 - 0040).

Therefore, one of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the teachings of SHIOMI with the teachings of Kohashi et al. in further view of Examiners Official Notice because in paragraph 0043 SHIOMI teaches that the use of the invention reduces noise.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kameyama et al. (US patent No. 5,416,516) teaches defective pixel correction using a switch.

Kagle et al. (US patent No. 6,189,358) teaches defective pixel correction in any portion of the image sensor and replacing that pixel with a non defective pixel.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Usman Khan whose telephone number is (571) 270-1131. The examiner can normally be reached on Mon-Thru 6:45-4:15; Fri 6:45-3:15 or Alt. Fri off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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